CLAIMS: *The following is a listing of all claims with their status and the text of all active claims.*

Claims [1-42] (CANCELLED)

43) (Previously presented) Product comprising at least one sort of isomer nuclides being in at least one metastable state capable of deexciting by emitting gamma rays in at least one characteristic energy line, in which the half-life of said characteristic energy line is variable over time, the initial half-life, called the initial variable half life, being lower by at least 40% as compared to the reference constant half-life of said characteristic energy line for said metastable state of the same said sort of isomer nuclides, except where said sort of isomer nuclides is Niobium (99Nb41).

44) (Previously presented) Product according to claim 43 in which the reference constant half life has been computed for said characteristic energy line for said metastable state of the same said sort of isomer nuclides obtained by natural decay.

45) (Previously presented) Product according to claim 43 wherein said sort of isomer nuclides is Niobium (93Nb41m), Cadmium (111Cd48m), Cadmium (113Cd48m), Cesium (135Ce55m), Indium (115In49m), Tin (117Sn50m), Tin (119Sn50m), Tellurium (125Te52m), Xenon (129Xe54m), Xenon (131Xe54m), Hafnium (178Hf72m), Hafnium (179Hf72m), Iridium (193Ir77m), or Platinum (195Pt78m).

46) (Previously presented) Product according to claim 43 in which said sort of isomer nuclides is radioactive.

47) (Previously presented) Product according to claim 43 in which said sort of isomer nuclides is in any physical or any chemical form, for example in the form of solid in sheet or powder, or in the form of fluid or gas.

48) (Previously presented) Product according to claim 43 in which said sort of isomer nuclides is in the form of alloys, mixtures, or chemical compounds.

49) (Previously presented) Product according to claim 43 in which said sort of isomer nuclides is Niobium (93Nb41m).

50) (Previously presented) Product according to claim 43 in which said sort of isomer nuclides is Cadmium (111Cd48m).

51) (Previously presented) Product according to claim 43 in which said sort of isomer nuclides is Cadmium (113Cd48m).

52) (Previously presented) Product according to claim 43 in which said sort of isomer nuclides is Cesium (135Ce55m).

53) (Previously presented) Product according to claim 43 in which said sort of isomer nuclides is Indium (115In49m).

54) (Previously presented) Product according to claim 43 in which said sort of isomer nuclides is Tin (117Sn50m).

55) (Previously presented) Product according to claim 43 in which said sort of isomer nuclides is Tin (119Sn50m).

56) (Previously presented) Product according to claim 43 in which said sort of isomer nuclides is Tellurium (125Te52m).

57) (Previously presented) Product according to claim 43 in which said sort of isomer nuclides is Xenon (129Xe54m).

58) (Previously presented) Product according to claim 43 in which said sort of isomer nuclides is Xenon (131Xe54m).

59) (Previously presented) Product according to claim 43 in which said sort of isomer nuclides is Hafnium (178Hf72m).

60) (Previously presented) Product according to claim 43 in which said sort of isomer nuclides is Hafnium (179Hf72m).

61) (Previously presented) Product according to claim 43 in which said sort of isomer nuclides is Iridium (193Ir77m).

62) (Previously presented) Product according to claim 43 in which said sort of isomer nuclides is Iridium (193Ir77m).

63) (Previously presented) Product according to claim 43 in which said sort of isomer nuclides is Platinum (195Pt78m)

64) (Previously presented) Method to irradiate the environment of the product according to claim 43 in which one employs the aforementioned gamma rays of said characteristic energy line, as a source of gamma rays initially emitting a high dose of radiation, then a decreasing dose, and followed by a low dose of radiation for a long time.

65) (Previously presented) Method according to claim 64 in which the aforementioned gamma rays at a characteristic energy line are used to conduct one or more physicochemical reactions.

66) (Previously presented) Method according to claim 64 in which the aforementioned product is in the form of a solution.

67) (Previously presented) Method according to claim 64 in which the aforementioned product has undergone a physical transformation or a chemical conversion following its manufacture.

68) (Previously presented) Method according to claim 64 in which the aforementioned product has been prepared by using a sample comprising said sort of isomer nuclides in its ground state, said sort of isomer nuclides having said metastable state, said sample being irradiated by means of gamma rays comprising groups of two or more entangled gamma rays of a sufficient energy to photoactivate said sort of isomer nuclides of said sample to said metastable state, said sample after irradiation forming said product.

69) (Previously presented) Method according to claim 68 in which said sample is irradiated by said groups of two or more entangled gamma rays produced by the Bremsstrahlung of accelerated particles.